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| 10/085,581 | 02/26/2002 | Yu-Cheun Jou | 020278 | 8984 |

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| EXAMINER |
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PATEL, NIRAV B

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| ART UNIT | PAPER NUMBER |
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2435

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05/12/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|------------------------------|--------------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/085,581 | Applicant(s) JOU ET AL. | |
| | Examiner NIRAV PATEL | Art Unit 2435 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,8-10,20,22-25,27-29 and 39-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,8-10,20,22-25,27-29 and 39-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Feb. 24, 2010 has been entered.

2. Claims 1, 3-6, 8-10, 20, 22-25, 27-29, 39-42 are pending.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 39-42 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 39 recites, "An apparatus for scrambling information bits in a communications system, the apparatus comprising: a sequence generator for..; a scrambler for" The apparatus of claim 39 comprises a sequence generator, a scrambler. Such claimed apparatus may be interpreted either as software, hardware or combination thereof necessarily includes hardware, is interpreted in its broadest reasonable sense as software/code/instruction [in accordance with application's

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specification paragraph 1055]. When software system/apparatus is claimed without including a machine or a physical part of the device within the meaning of 35 USC § 101, it is considered non-statutory. Explicit presentation of a hardware component/element, which falls within the statutory category of 35 USC § 101, in combination with the claimed apparatus would overcome the rejection.

Claim 40 recites, “An apparatus of unscrambling information bits in a communications system, the apparatus comprising: a sequence generator for....; an unscrambler for”. The apparatus of claim 39 comprises a sequence generator, an unscrambler. Such claimed apparatus may be interpreted either as software, hardware or combination thereof necessarily includes hardware, is interpreted in its broadest reasonable sense as software/code/instruction [in accordance with application’s specification paragraph 1055]. When software system/apparatus is claimed without including a machine or a physical part of the device within the meaning of 35 USC § 101, it is considered non-statutory. Explicit presentation of a hardware component/element, which falls within the statutory category of 35 USC § 101, in combination with the claimed apparatus would overcome the rejection.

Claim 41 recites, “A computer program product, comprising: a computer-readable medium comprising code executable on at least on computer to cause the at least one computer to:....”. Claim 41 recites the limitation on a computer-readable medium storing instructions, which is not only limited to medium of a statutory type, is held nonstatutory [specification, paragraph 1057]. The claimed “computer/machine readable medium” must be physical structure, not a signal. In addition, transitory forms

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of signal transmission through transmission medium such as radio broadcast, electrical signals through a wire, and light pulses through a fiber-optic cable, are embodiments that are not directed to statutory subject matter because those transmissions convey only information encoded in the manner are transitory (In re Nuijten 84 U.S.P.Q.2d 1495). On the other hand, claim limitation that specifically recites the medium as non-transitory and statutory type while still according to the specification would overcome the deficiency.

Claim 42 have limitations that are similar to those of claim 41, thus they are rejected with the same rationale applied against claim 41 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-6, 8-10, 20, 22-25, 27-29, 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smeets (US Patent No. 6,813,625) and in view of Hakaste (US Patent No. 6,813,355).

As per claim 1, Smeets teaches:

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determining a scrambling sequence based on a metric of system time [Figs. 2, 4, 5, col. 5 lines 33-67, col. 6 lines 15-20, col. 7 lines 31-67]; wherein said determining a scrambling sequence includes determining the metric based on a subinterval of a system time interval [Figs. 2-5, col. 5 lines 39-50, col. 6 lines 15-20, col. 7 lines 31-42]; and scrambling the information bits of the control message with the determined scrambling sequence in accordance with the metric [Figs. 8a, 8b, col. 9 lines 39-65]. Smeets does not expressively mention the metric based on a subinterval of a system time interval of a control channel in which the information bits of a control message are to be transmitted.

Hakaste teaches:

determining a scrambling sequence includes determining the metric based on a subinterval of a system time interval of a control channel in which the information bits of a control message are to be transmitted [Figs. 4-7, col. 3 lines 60-67, col. 4 lines 1-9, col. 5 lines 33-67, col. 6 lines 1-54, col. 47-50, col. 8 lines 2-6].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Hakaste with Smeets to utilize the subinterval of a system time interval of control channel for determining the scrambling sequence, since one would have been motivated to provide reliable encryption/decryption function for the communication system [Hakaste, col. 3 lines 45-56].

As per claim 3, the rejection of claim 1 is incorporated and Hakaste discloses:

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determining the metric in accordance with a first subinterval of the system time interval [Figs. 1-3, associated text].

As per claim 4, the rejection of claim 1 is incorporated and Hakaste discloses:

performing mapping of the metric on the scrambling sequence [Figs. 4-5].

As per claim 5, the rejection of claim 1 is incorporated and Hakaste discloses:

performing an exclusive-OR of the information bits with the scrambling sequence [Figs. 4-5].

As per claim 6, Smeets discloses:

determining an unscrambling sequence based on a metric of system time [Figs. 2, 4, 5, col. 5 lines 33-67, col. 6 lines 15-20, col. 7 lines 31-67], wherein said determining an unscrambling sequence includes determining the metric based on a subinterval of a system time interval [Figs. 2-5, col. 5 lines 39-50, col. 6 lines 15-20, col. 7 lines 31-42]; and unscrambling the information bits of the control message transmitted on the control channel with the determined unscrambling sequence in accordance with the metric [[Figs. 8a, 8b, col. 9 lines 39-65].

Smeets does not expressively mention the metric based on a subinterval of a system time interval of a control channel in which the information bits of a control message are to be transmitted.

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Hakaste teaches:

determining an unscrambling sequence includes determining the metric based on a first subinterval of a system time interval of a control channel preceding a second subinterval of the system time interval by a pre-determined number of subintervals, the second subinterval including information bits of a control message transmitted on the control channel [Figs. 4-7, col. 3 lines 60-67, col. 4 lines 1-9, col. 5 lines 33-67, col. 6 lines 1-54, col. 47-50, col. 8 lines 2-6, Fig. 1-3 associated text].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Hakaste with Smeets to utilize the subinterval of a system time interval of control channel for determining the unscrambling sequence, since one would have been motivated to provide reliable encryption/decryption function for the communication system [Hakaste, col. 3 lines 45-56].

As per claim 8, the rejection of claim 6 is incorporated and Hakaste discloses:

determining the first subinterval of the system time interval preceding the second subinterval of the system time interval by one subinterval [Figs. 1-3 associated text].

As per claim 9, the rejection of claim 6 is incorporated and Hakaste discloses:

performing mapping of the metric on the unscrambling sequence [Figs. 4-5].

As per claim 10, the rejection of claim 6 is incorporated and Hakaste discloses:

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performing an exclusive-OR of the information bits with the unscrambling sequence [Figs. 4-5].

As per claim 20, it encompasses limitations that are similar to limitations of claim 1. Thus, it is rejected with the same rationale applied against claim 1 above.

As per claim 22, the rejection of claim 1 is incorporated and it encompasses limitations that are similar to limitations of claim 3. Thus, it is rejected with the same rationale applied against claim 3 above.

As per claim 23, the rejection of claim 20 is incorporated and it encompasses limitations that are similar to limitations of claim 4. Thus, it is rejected with the same rationale applied against claim 4 above.

As per claim 24, the rejection of claim 20 is incorporated and it encompasses limitations that are similar to limitations of claim 5. Thus, it is rejected with the same rationale applied against claim 5 above.

As per claim 25, it encompasses limitations that are similar to limitations of claim 6. Thus, it is rejected with the same rationale applied against claim 6 above.

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As per claim 27, the rejection of claim 25 is incorporated and it encompasses limitations that are similar to limitations of claim 8. Thus, it is rejected with the same rationale applied against claim 8 above.

As per claim 28, the rejection of claim 25 is incorporated and it encompasses limitations that are similar to limitations of claim 9. Thus, it is rejected with the same rationale applied against claim 9 above.

As per claim 29, the rejection of claim 25 is incorporated and it encompasses limitations that are similar to limitations of claim 10. Thus, it is rejected with the same rationale applied against claim 10 above.

As per claim 39, it encompasses limitations that are similar to limitations of claim 1. Thus, it is rejected with the same rationale applied against claim 1 above.

As per claim 40, it encompasses limitations that are similar to limitations of claim 6. Thus, it is rejected with the same rationale applied against claim 6 above.

As per claim 41, it encompasses limitations that are similar to limitations of claim 1. Thus, it is rejected with the same rationale applied against claim 1 above.

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As per claim 42, it encompasses limitations that are similar to limitations of claim 6.

Thus, it is rejected with the same rationale applied against claim 6 above.

Response to Argument

5. This written action is responding to the Request for Continued Examination (RCE) dated Feb. 24, 2010.

Regarding to 35 USC § 101 rejections: The rejection for claims 20, 22-24, 25, 27-29 is withdrawn. However, the apparatus claims 39 and 40 do not expressly include a hardware component/element. As per the specification [page 15, paragraph 1055] of the present application, the various logical blocks, modules, circuits and algorithms steps described in the present application may be implemented as electronic hardware, computer software or combination of both. Therefore, the claimed apparatus is not limited to hardware only or a combination of hardware and software only, instead being sufficiently broad so as to encompass software alone. As such, the claimed apparatus must include the hardware necessary to realize any of the functionality of the claimed modules and produce a useful, concrete and tangible result. Absent recitation of such hardware as part of the claimed apparatus, it is considered non-statutory

Regarding to 35 USC § 103 rejections: Upon further consideration, a new ground of rejection is made based on newly cited prior art. See new ground of rejection based on Smeets (US Patent No. 6,813,625) and Hakaste (US Patent No. 6,813,355). Smeets teaches determining the scrambling/unscrambling sequence based on a metric of system time, wherein the determining the scrambling sequence includes determining

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the metric based on a subinterval of a system time interval [Figs. 2, 4, 5, col. 5 lines 33-67, col. 6 lines 15-20, col. 7 lines 31-67] and scrambling/unscrambling the information bits of the message with the determined scrambling/unscrambling sequence in accordance with the metric [Figs. 2-5, col. 5 lines 39-50, col. 6 lines 15-20, col. 7 lines 31-42, Figs. 8a, 8b, col. 9 lines 39-65]. Further, Hakaste teaches determining a scrambling/unscrambling sequence includes determining the metric based on a subinterval of a system time interval of a control channel in which the information bits of a control message are to be transmitted [Figs. 4-7, col. 3 lines 60-67, col. 4 lines 1-9, col. 5 lines 33-67, col. 6 lines 1-54, col. 47-50, col. 8 lines 2-6]. Therefore, the combination of Smeets and Hakaste teaches the claim subject matter.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Giinther (US 4817145) – Generator for generating binary ciphering sequences

Wiberg et al. (US 2002/0172264) – Partly orthogonal multiple code trees

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIRAV PATEL whose telephone number is (571)272-5936. The examiner can normally be reached on 8 am - 4:30 pm (M-F).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on 571-272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nirav Patel /

Examiner, Art Unit 2435